DOCUMENT RESUME

ED 238 175 EA 016 273

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TITLE Economics and Financing of Education.
PUB DATE Jun 82
NOTE 34p.; Paper presented to the Canadian Association for the Study of Educational Administration at the Annual Conference of the Canadian Society for the Study of Education (Ottawa, Ontario, Canada, June 9-13, 1982).
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Boards of Education; Centralization; *Economic Change; *Educational Economics; *Educational Equity (Finance); *Educational Finance; Educational Research; Elementary Secondary Education; *Finance Reform; *Financial Support; Foreign Countries; Grants; School Districts; Special Education; State Aid; Taxes; Teacher Salaries; Technological Advancement
IDENTIFIERS Canada

ABSTRACT

Educational economics and finance is a complex issue that the author has approached from three different areas: (1) a review of recent literature, (2) the state of the art of financing education, and (3) the state of research on the economics and financing of education. The author points to a revolution in education finance in Canada. The provinces of British Columbia and Nova Scotia are implementing radically different school finance plans, Alberta and Manitoba are investigating possibilities for change, Quebec is reorganizing its schools and changing laws affecting wages of teachers, Saskatchewan is changing financing in northern schools, and Prince Edward Island and Ontario are also involved in finance changes. A detailed discussion is provided of the situation in each province and of the current status of implemented or proposed changes. Regarding techniques for financing education, the author finds contradictory evidence: while "technological creep" is having a revolutionary impact, the overall mechanisms for controlling education costs are inadequate. The author concludes there is a new role for finance specialists at universities to undertake research to find new ways to improve educational finance. (MD)

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CASEA/ACERS STATE OF THE ART SEMINAR*

ECONOMICS AND FINANCING OF EDUCATION

Stephen B. Lawton
The Ontario Institute for Studies in Education

May the 30 1848

Article of Agreement made between Miss Martha Leatherbury of the first part and we the undersigners of the second part said Martha proposes to teach a plain orderly english school also reading writing and spelling for the term of thirteen weeks--also five days in each week for the consideration of one dollar per week and signers are to board said Martha the term said Martha agrees to commence by the fifth day of June if there are thirteen schollars signed

pleasant township
marth leatherbury

William Richards (2 children), James Nelson (1), Reuben Wade (2), Thomas Baysell (1), Wm Markland (1), Reuben Been (1), John Stour (3), Esquire Taylor (1), Elijah Cole (1)

Financing education circa 1850 was a simple affair. Nine fathers with 13 children hiring a teacher for 13 weeks for room, board and 13 dollars.

It isn't simple any more.

The situation is so complex, in fact, that there seems to be no one approach to the "state of the art" of educational economics and finance that will do the topic justice. For this reason, I have chosen three different approaches. First is a straightforward review of recent literature on the topic, grouped on a province by province basis since, in most cases, the documents are concerned with issues in a particular province. Second, I consider the state of the art of financing education

EA 016 273

* Paper presented to the Canadian Association for the Study of Educational Administration (CASEA) at the Annual Conference of the Canadian Society for the Study of Education (CSSE), June 9-13, 1982, Ottawa, Ontario.

as a technical field all its own. Finally, I discuss the state of the art of research on the economics and financing of education. Throughout these separate parts, attention is paid to the identity of the various authors or experts, and to the particular topics within the field they are addressing.

This assessment does have some important limitations. First, I have focussed on the economics and finance of elementary and secondary education. I had intended to deal with post-secondary issues as well, but found this restriction was necessary to make the task feasible. Second, I was not fully successful in obtaining documents about which I was aware, or know must exist, for several provinces.

Review of Recent Documents

There is, it seems, a revolution in education finance currently under way in Canada. Two provinces, British Columbia and Nova Scotia, are in the midst of implementing radically different school finance plans. Two others, Alberta and Manitoba, are or will soon be undertaking intensive investigation of the topic. Quebec plans to enact major changes in laws affecting wages of all government employees, including teachers and to undertake a sweeping reorganization of its schools; as well, significant changes in financing northern schools in Saskatchewan, small schools in Prince Edward Island, and special education in Ontario are occurring. Pressure for changes is also evident in Newfoundland and Labrador, where the planned introduction of Grade 12 will no doubt place greater pressure on that province's system of education finance. Only New Brunswick, with its fully centralized system of finance, seems quiet, though fiscal restraint there is apparent. No doubt this restraint reflects the system's reaction to economic problems that are reflected in other ways in other provinces that have different ways of financing schools.

British Columbia.

Recent changes in B.C.'s system of school finance were enacted in Bill 27, Education (Interim) Finance Act. The demand for changes in the previous system had at least two sources: (1) the rapid escalation of the price and assessed values of residential real estate in, especially, the Western mainland around Vancouver; and (2) the current economic recession that has reduced government revenue. Published research has focussed on the former, and is best reflected in the School Taxation Report: Report of the Committee to Examine the Effect of Rapid Rises in Homeowner Real Estate Values in School Taxation (Ministry of Education, 1981). The Committee consisted of Mr. J. R. Fleming, Assistant Deputy Minister for Educational Finance, Ministry of Education and Mr. Peter Adams, Director, Tax and Fiscal Policy Branch, Ministry of Finance.

The rapid rise in house prices in 1980 in Vancouver and surrounding areas reeked havoc on the system of educational finance in British Columbia. With market value assessments that are updated on an annual (or near annual) basis, over 60 percent of the cost of The Basic Education Program (B.E.P.) coming from property taxes, and a recpature provision that let the province in effect redistribute property tax revenue from one part of the province to another, the rapid escalation in prices meant an equally rapid escalation in property taxes. To lessen the effect somewhat, the Province had reduced the assessment ratio on residential property 14.5 in 1980 to 11 percent in 1981. This helped, but applied to the whole province it shifted part of the burden off of residential property and on to commercial and industrial assessment, even in communities where real estate values had not changed. The situation was also ameliorated by tax relief grants paid to homeowners; however, the fact that these grants, paid to municipalities, were shown on tax bills as general grants, rather than as grants earmarked for the reduction of education taxes, left the public with a perception of soaring-education taxes. As well, the fact that a board's actual expenditures for one year became its Basic Education Program revenue for the next, meant that revenue raised from supplementary levies on the escalating assessments would get rolled into the B.E.P. after one year.

The Committee report is an exceptionally thorough analysis of over a dozen different options that the Province had to cope with the problem. Each analysis includes a simulation of the effects an option would have on an average ratepayer in a given school district. The report concludes with four recommendations:

1. that a phase-in system be established on a district basis so that rapid increases in assessed values of homes do not have undue impact on homeowners taxes in a given year.
2. that in addition the homeowner grant system should be revised to target an additional amount to those homeowners that actually pay school taxes (there being many for whom the grant currently exceeds their school taxes).
3. that tax notice systems should be amended so all homeowners grants appear as a deduction first against school taxes and then against other taxes.
4. that several longer range studies be undertaken, including
    a. the lack of education program content in the Basic Education Program, as is presently calculated.
    b. a revision to the educational financial system which ensures that financial outcomes are the result of educational decisions taken by the province and by local school districts. By making this revision it should become more obvious to taxpayers as to which agencies are making the decisions which affect their taxes.
    c. the adequacy of the property tax system as it applies to residential properties. (p. 10).

Point 4b needs some clarification. Note that much of the tax increase, especially in Vancouver, was due to the standard provincial mill rate being applied to an inflated assessment, not a decision by the Ministry or local board to increase program. As well, in all boards, what part of the levy was provincially mandated and what part was locally set were not evident tax bills. Hence, there was no clear link between taxes and program, nor between taxes and the level of government setting the levy.

This rather extensive summary is given for two reasons. First, it forms a basis for understanding recent action by the Province, and second, it provides several themes apparent in the experiences of other provinces.

On April 13, 1980 two bills were given first reading in the B.C. Legislature, Bill 27, Education (Interim) Finance Act and Bill 28, Compensation Stabilization Act. Both are meant to be in place for two years. The first, which became law on April 30, is retroactive to December 31, 1981, and the second to February 18, 1982.

Although Bill 27 is meant to be for a transition period only, it is clear some of the features of the grants plan adopted by the Minister under its authority are intended to be permanent.

First, only the province will henceforth levy a property tax on farm, commercial and industrial assessments. Local school districts will be able to tax only residential assessments. Second, a board's revenue will be composed of three parts: a base grant (60% of school budget), a shared services grant (up to 35%); and a local share (of 5%). As well, the Minister may limit a board's budget.

In practice, new tax notices will separate "school taxes from municipal and general taxes, and (show)...that the Homeowner Grant first relieves school taxes (Ministry of Education, Province of British Columbia, May 6, 1982, p. 3). Detailed tables included in the news release quoted above show the impact of the new system for the average ratepayer in each of 75 districts in comparison to both 1981 actual taxes and projected taxes for 1982 under the former system. Notably, net taxes in Vancouver will average $122 less in 1982 than in 1981.

The restraint implied by the power of the Minister to limit budgets is reflected, as well, in Bill 27, which creates a compensation stabilization commissioner who can "rule on whether a compensation plan complies with the restraint program, to make an order enforcing changes to a compensation plan and to file orders in The Supreme Court from which there is no appeal (BCSTA Report, 77, 11 p. 3)." Even this plan proved inadequate to control the government expenditures, so in August the government announced a 10% cut in grants for the last three months of the current calendar year. How this cut is to be translated into action -- lay offs, salary roll backs, or reduced teaching year -- is yet to be decided. A bill presented in late September would reduce the school year by five days without cutting teaching hours and would eliminate professional development days (Globe and Mail, September 30, 1982).

The relationship of the new education finance plan to the earlier School Taxation Report is apparent, even though the government appears to have moved faster than had been recommended in the study. An early assessment of the impact of the interim finance plan on pupil and ratepayer equity is given by Mark and Carruthers in "Alternative School Finance Philosophies: The Case of Equity in British Columbia" (August 1982).

The drama of this major tax reform over-shadows the innovation for which B.C. has won considerable attention: its 1977 decision to provide partial funding to some private schools. A summary of the progress to date in this area was provided by the first Inspector of Independent Schools, J. Phillipson (1980) in "Implementation of The Independent Schools Suport Act (1977): An Information Paper." An early assessment also appears in Daniel J. Brown (n.d.), "Financial Effect of Aid to Nonpublic Schools: The British Columbia Experience."

The general assessment seems to be that the major effect of B.C.'s contribution (of about $550 per student/on average) to non-public schools has been to increase teacher's salaries in these schools. Neither enrolments nor the number of non-public schools has increased at a rate beyond that which otherwise might have been expected. And, the transfer of public school students to private schools (which tend to operate at a lower cost/pupil) has not saved tax payers funds because they have not transferred in large enough numbers to offset the nine million dollar cost of the program. The 5 year (now 3 year) wait before a school can apply for funds may be a factor in this "slow start," but one must wait and see.

Alberta.

The Minister's Task Force on Financing K-12 Schooling in Alberta currently dominates the field of education finance in Alberta. Its first report, Financing K-12 Schooling in Alberta: Stage 1 (Alberta Education, 1981) is a handsomely printed compendium of nine project reports, condensed for publication. Each is attributed to separate authors, and overall coordination is credited to Mr. W. Leigh Hill, Associate Director of Planning and Research. Among the authors are Brian Caldwell (formerly of the Department of Educational Administration, The University of Alberta and now at the University of Tazmania), Eugene Ratsoy and a group from the Department of Educational Administration, University of Alberta, Peter C. Nichols and Associates Ltd., W. L. Hill (of Planning and Research Education, Alberta), Peat, Marwick and Partners, and Lloyd E. Symyrozum (doctoral student, University of Alberta).

Caldwell opens the volume with an essay on the policy process that decides how education is financed in Alberta. Drawing on Leroy V. Sloan's doctoral dissertation, A Policy Analysis of Legislation Permitting Public-Private School Agreements for the Provision of Educational Services (University of Alberta, 1980), Caldwell concludes that interest groups working directly with (or on) members of the legislature are most effective, and can overcome the entrenched opposition of the teachers' and trustees' associations. Even Alberta Education itself has marginal influence, "except when it comes to judgments on questions of feasibility (p. 21)."

"Situation Reviews on Financing Schooling in Alberta" (Chapter III) by Eugene Ratsoy and seven others provides an overview of recent changes in both the financing and program offerings in Alberta. The major focus, one which has received to little study in the past, is the cumulative effect of individual, often categorical, grants. Yet, some of the work has, frankly, a scholastic air, its utility not being immediately evident. For example, "The 1977, 1978 and 1979 audited Financial Statements were analyzed to discover the relationships among revenue categories, expenditure categories, to determine whether associations existed where they could be expected and whether there were any unexpected correlation patterns (p. 34)." It is unclear to me why one should be interested, say, in the correlation between the percent spent on instruction and percent on transportation, particularly when the size of the budget and geographic characteristics are left uncontrolled. Yet, this chapter is rich in provocative questions and trend data that stimulate thought, both about the relationship between finance and program and the overall distribution of funds.

The most direct and informative study in the volume are those prepared by private consulting firms. Nichols and Associate's "Taxation and Assessment in Educational Finance" (Chapter IV) should be read first, since it provides the historical information taken for granted by the authors of preceding chapters. Nichols clear presentation, in tables, graphs, and charts, are worthy of emulation.

Of particular note, Nichols comments that though school boards are restricted to an annual increase of 8% in mill rates (without a plebiscite), the ability to carry over unused taxing authority and rapidly escalating

assessments have meant no effective cap on school board expenditures. Although Alberta requires no contribution from residential ratepayers to The School Foundation Program Fund, it does allow boards to set Supplementary Requisitions that are levied against residential, as well as commercial, property. In practice, these supplementary requisitions now represent 25 percent of the funds committed to education, far above the 11 percent in 1970 and 5% in 1961. In short, Alberta faces the same uncontrolled increases in education expenditure that seems to have prompted B.C. to reform its system of educational finance.

The notion of "local support" is not as obvious as it first appears, as is clear from W. L. Hill and Bruce Paige's chapter on the topic (Chapter V). The confusion is caused by the "local contribution" made to the foundation plan, as distinct from the "local contribution" reflected in supplementary requisitions. They conclude that including both in a definition of local support is confusing, and that the term should be restricted to that provided in the supplemental requisitions alone. Their argument is based on the idea that this supports "popular opinions," a somewhat less elegant argument than that used in the B.C. School Taxation Report, which was based on the need to inform the public as to what agency of government was levying what tax for what purpose. As well, one might suspect there is political value in the province being able to claim the foundation levy as a provincial contribution, since doing so would make that level of government appear more generous.

W. L. Hill and H. King deal with the measurement of "Fiscal Equalization Among Alberta School Systems," (Chapter VI). It is basically an academic treatise on a topic which, because of the esthetic appeal of Lorenz curves and zero Gini coefficients, has received more attention than it probably deserves since it holds the idea of equal expenditures as sacrosanct, and ignores value issues such as efficiency and autonomy. They do add, though, Alberta data to the list of coefficients of variation in expenditure developed by Larry Bezeau, Blaine Currie, and myself, for five other provinces.

Peat, Marwick and Partners have two contributions in the volume, "Disaggregating and Revising the Alberta Education Price Index" (Chapter VIII) and "School Finance Computer Model" (Chapter X). The purpose of the

first study was to refine the Education Price Index, developed in the mid 1960s by Peter Atherton in his doctoral thesis, The Impact of Rising Price Levels on Expenditures for School Operation in Alberta, 1957-1965 (University of Alberta, 1967), and to develop regional sub-indices for pricing education.

They note, in their findings, that the near uniformity of teacher salary grids across the province makes teachers salaries almost irrelevant to regional prices. As well, they noted that the earlier index, by including average teacher salaries (which include recognition of improvements in quality as reflected by experience and qualifications steps) was more a cost index that incorporated changes in price, quantity and quality, than a pure price index.

The chapter concludes with a detailed exposition of a price index. Since the latter is dominated by teachers salaries, which were relatively uniform, no regional variation could be verified, though such variation was suspected at the sub-index level (e.g., services and goods). Considerably more effort, and staff, would be necessary, they note, to compile a reliable index on a regional basis.

In their other contribution, Peat, Marwick and Partners report on the development of a model for simulating "the impact at the local school board level of any proposed changes to Alberta school finance policy (p. 177)," including changes in each of the 40 discrete grant categories. A flow chart of the system is provided. When complete and operational, this system will allow the simulation of changes in grant plans, and will assist in answering some of the questions posed by Ratsoy, et al. as to the interaction and overall affect of these plans.

D. W. Ellis and Associates report on the development their "Enrolment Projections System" (Chapter VIII). To date, they have found it difficult to assemble data bases adequate for making accurate estimates of enrolments at the local level.

Finally, Lloyd Symyrozum's "Measuring the Scope and Depth of Alberta School Programs" (Chapter IX) suggests a District Program Index that encapsules both the breadth and depth of course offerings in a school system. School size and region were important predictors of a system's Index value, as were transportation and compensatory grants. He concludes

by suggesting three categories of grants should be identified and linked to programs: general purpose grants, special purpose or categorical grants, and compensatory grants.

The conclusion to the report is found in "The Introduction," with the charge to the Stage 2 Task Force, whose membership includes Dr. James Hrabi, Associate Deputy Minister, Instructional Division, and Dr. William Duke, Director of Finance Statistics and Legislature. Its mandate is to make recommendations to improve Alberta's system of education finance (fiscal equalization, locus of control with regards to limits on local requisitions, equity of school programs), excluding private schools. Its report is due December 31, 1982.

Private schools are excluded from the Task Forces mandate because a separate investigation into this topic has been undertaken. Currently, under the Private School Regulations of the Alberta Education Act, Alberta provides 70 percent of the provincial foundation grant to private schools that offer courses of study prescribed or approved by the Minister and that employ only teachers holding valid Alberta teaching certificates.

More contentious, of late, than the funding of private schools has been the operation of "that portion of Bill 43, a 1975 amendment to Section 60 of The Alberta School Act which provided that, 'boards with the prior approval of the Minister may enter into an agreement with...the operator of a private school for the provision of educational services' (Caldwell, 1981, p. 16)."

In Calgary, the success of the Logos Christian School, an alternative school with a fundamental Christian philosophy, has been seen as a threat both to the enrolments of regular public schools and the principles on which public school systems have traditionally operated, specifically the value of inclusiveness rather than exclusiveness (Globe and Mail, January 1, 1982).

Strictly speaking, the issue is purely political, except that as alternative schools within the public school system, schools such as Logos draw far more financial support. In the case of Jewish schools, Shipman (1982) reports they receive 65 percent of their budgets from the boards with which they are associated, far more than would be the case were they independent schools and receiving 70 percent of the foundation set in the grant plan.

In addition to important work at the provincial level, there is a line of research of interest to those running regular schools. In a series of reports and articles, Brian Caldwell and others have advocated a policy of school based "global" budgetting (see, for example, Caldwell's 1980 "Resource Allocation at the School Level: An Examination of School-Based Budgeting in Canada and the United States").

Though the idea is relatively straightforward, the organizational requirements and implications are not. To a degree, the idea reflects a populous revolt of educators against the bureaucracies that often run schools as if they were branch plants of little real importance. One of the more popular responses as to its value was, "Optimism that SSB might allow school to circumvent bureaucracy." Or, stated more positively, "Optimism that SBB might enable school to define objectives, establish priorities and give increased sense of purpose." Over 75 percent of the respondents in Edmonton expressed high agreement with both statements.

Saskatchewan.

In, "Options Respecting Local Financing of Education," prepared for the Saskatchewan Research Council, Dennis Dibski (1981) of The University of Saskatchewan reviews various options open to the government, should it wish to change the current foundation grant plan, under which the province pays 53 percent of the cost of education while 39 percent is borne by the local ratepayers. The most viable alternative, he believes, is full provincial funding, with some discretionary tax leeway at the local level.

The proposals in "Northern Saskatchewan Education Grants" (Saskatchewan Ministry of Education, 1978) are more specific. Prepared by a Steering Committee composed of individuals from the Department of Northern Saskatchewan, the Department of Finance, and consultants, the report has a complex set of recommendations and formulae that would link grants to sparsely settled Northern communities to the overall grants plan, but provide special assistance using grants applicable only to the north. It is expected that the changes, which have been implemented, will adequately recognize higher costs of education in the north, and the special needs which, in the name of equity, require extra funds.

Decentralized or school based budgeting has also become a focus of research in Saskatchewan. Two articles in the September 1981 issue of The Saskatchewan Educational Administrator are devoted to the topic. "Decentralized Budgeting and the Rural Saskatchewan Principal" by John Rigby and Dennis Dibski report the results of a survey done for Mr. Rigby's masters thesis. "A Model for The Implementation of Decentralized School Budgeting" by Bruce M. Shaw draws on the literature to suggest how one might proceed in order to implement a SSB program successfully. Both Rigby and Shaw rely upon the work of Caldwell in Edmonton.

Manitoba.

On May 7, 1982, Education Minister Maureen Hemphill announced "plans to conduct a major study of educational financing, the first such study since 1964 (Manitoba Information Service Branch, May 7, 1982, p. 1)." As well, steps were announced to alleviate the need "for undue special levy increases, and towards correcting inequities inherent in the Education Support Program." In effect, the province increased its basic contribution from 53.5 percent of expenditures to 54.4 percent, and approved supplemental grants totalling 12.4 million to divisions with per pupil assessment of less than $22,000 and "which face a widening disparity in provincial funding as a result of the 1980 budget ceiling on eligible expenditures (Manitoba Information Services Branch, March 5, 1982, p. 1)."

A number of other recent documents, including several theses, address education finance in Manitoba. Two are Glenn H. Nicholls, "An Inquiry into the Implications of Full Provincial Funding as an Alternative for Financing the Public Schools of Manitoba" (1979) and John Vanderstoel's "The Financing of the Grade XII Student in Six Independent Schools in Winnipeg," (1976). Declining Enrolments in Manitoba's Public Schools: Issues and Information by P. J. Husby and J. A. Riffel (1979) is, however, the best recent overview of the state of education in Manitoba.

Ontario.

In the past, Ontario has produced an excessive amount of research material related to financing education; today it is curiously quiet in this regard, though the government is becoming more active.

The last major project in the area was the Commission on Declining School Enrolments in Ontario. Its Final Report: Implications of Declining Enrolment for the Schools of Ontario (CODE, October 31, 1978), at 331 pages, was only the tip of the iceberg. In addition, 42 working papers, 18 information bulletins, 11 mini-studies, 8 statistical appendices, 2 occasional papers, and 2 interim reports were completed.

Among the most interesting of these studies, in an academic sense, are two studies dealing with economics of scale. The first is Mini-Study 10 by Ramesh Kumer, "Cost of Education in Ontario: A Study of Economics of Scale in School Costs at the Board and School Levels." The second is Working Paper 4 by D. A. Dawson, "Economies of Scale and Cost-Quality Relationships in Elementary Schools: A Survey." To my knowledge, these are the only recent studies on this topic. While such research usually implies that one wishes to amalgamate schools, one can treat the analysis in inverse fashion, and derive from the analysis the "extra costs" present in smaller schools (or boards) that might be covered by extra grants.

In the Final Report, R. W. B. Jackson makes several recommendations that one might suspect were read in British Columbia in recent months. First, he recommended pooling commercial and industrial assessments on a provincial wide basis, a step recently taken in B.C. As well, he recommended a strong, well defined core program. The B.C. and Alberta reports both reflected this same notion.

CODE's final report was published almost simultaneously with the Final Report of the Committee on the Costs of Education. Commissioned in June 1971, the final report was printed in July 1978, after seven extensive interim reports. With Jack MacCarthy, former Deputy Minister of Education and a professor of educational administration (now retired) at OISE, as its Executive Director, the Committee made recommendations on education finance that were extremely critical of the weighted student schema used in the grants plan then and now, and supported the idea of a province-wide uniform mill rate for all municipalities based on equalized assessments. Further, a discretionary mill rate of one mill was suggested.

Since that date, Ontario has introduced what it terms an equalized mill rate plan (see "Equality of Education Opportunity and Equalization of the Mill Rate Burden--Provincial Grants to School Boards for 1982" by Ralph Berson, 1981). In practice, the plan acts as a percentage equalization plan for those spending under grant ceilings, and a foundation plan for those over grant ceilings (which all boards now are). Tax deductions for accommodation and homeowner grants to those over 65 complicate the picture, but it appears the province funds about 55 percent of the cost of education in the average board. Data are not readily available on the local contribution raised as a result of levies beyond the computational mill rate used as a basis for grants.

Costs are an issue in Ontario, however, as they are in other provinces. "An Analysis of Major Determinants of Teacher Salaries and their Implications for Educational Expenditures" by Brian Sharples (Kingston: Queen's University, 1978) is a thorough analysis of the responses of expenditures to increases in teacher's salaries.

The government's recent announcement of 5 percent wage controls for 1983 for public employees, and the temproary removal of the right to strike over wage settlements in the public sector, indicates a general commitment to control future expenditures (Globe and Mail, September 22, 1982). This action, in concert with the federal 6 and 5 percent control program and British Columbia wage restraints, show that even Ontario's broad based economy and cautious increases in expenditures over the past few years have not insulated its government from the effects of the current recession.

Tax assessment, too, remains a problem, particularly in older urban areas. Reform proceeds slowly, since there will likely be as many losers as winners if market value assessment is begun in areas like Metro Toronto. Currently, detailed surveys are underway to determine the exact effects of a move to market value assessments. The last full report on the topic was the Report of the Provincial- Local Government Committee on Property Tax Reforms (Toronto: Queen's Printer, 1978). It seemed the death-knell for the topic, but that clearly was not the case. As well, there have been reports that The Ontario Ministry has been developing plans to provincialize the commercial and industrial assessment, although they are too coy to call it that (Robert & Matas, September 21, 1982). Referring to the scheme as

one of "pooling" assessments, James Martin, director of the Ministry's grants policy branch, is reported to have said the Ministry wants "to change the tax arrangement only for the portion of revenues applying to spending above the provincial limit. Boards that want to continue imposing additional taxes...would be required to place a tax on homes and business but would be allowed to keep only the revenue from the tax on homes. Tax revenues from businesses would be pooled and redistributed among boards lacking wealthy commercial and industrial properties." However, since the basic mill rate already levied by all boards can be considered as a provincial tax, this action would be equivalent to provincializing the commercial/industrial assessment. Presumably, the revenue accruing to the province as a result of supplemental levies set by boards would be used to raise the level of basic funding.

The largest current study related to education finance in Ontario is the mapping of the incidence of students who teachers perceive as needing special education. This survey is in support of Bill 82, which will make special education mandatory in all boards by 1985.

Initially, the province is funding special education with a flat $125 per student, based on all students in a board. The special education weighting factor previously used has been dropped. Documents explaining the survey suggest that special education funding may be restructured in the future, based on survey results.

Quebec.

The Québec School: A Responsible Force in the Community (L'École: Une École Communantaire et Responsable, Ministère de l'Éducation, 1982) sets forth the Quebec government's current ideas for reorganizing the structure of education in the province. Under the plan, schools would be reorganized under common councils rather than the current system of Catholic and Protestant school boards with their francophone and anglophone sections. Only on the island of Montreal would there be separate boards, and those would be organized on the basis of language, not religion.

The ideal set forth under the plan would have the character of each school determined by its "educational project." The school would be at the centre, with school boards, reorganized on a county or regional basis, demoted to being support agencies controlled by trustees selected from school councils.

Striking in the report is its condemnation of the education professions at virtually all levels. Collective agreements are seen to promote "rigid schedules of activities and very strict rules governing the duties of personnel, not to mention the sometimes abstract and ideological slant of slogans governing alignment of powers (p. 22)." School boards are often "more concerned with administration than pedagogy (p. 25)" and the ministry is guilty of centralization, technocratic concerns and making decrees (p. 29).

The proposals are extremely populous in character, and bring to mind the philosophy that supports school based budgeting in Alberta. The bureaucracy is the enemy; the message is one of power to the people, 1980's style.

The Québec School also recounts reforms already made in Quebec: the creation of the ministry in 1964, the Charte de la langue francaise (Bill 101, 1977), and the Municipal Taxation Act (Bill 57, 1979).

The Municipal Taxation Act accompanied a major change in the method of financing school boards, particularly in their power to levy taxes.

> The taxation of real estate was placed almost entirely in the hands of the municipalities; to defray what is known as inadmissible expenses (that is, inadmissible for budget-balancing grants), school boards could no longer collect taxes exceeding 0,25¢ per 100$ of real estate assessment, or 6% of the amount obtained by applying the budgetary rules for determining government grants, whichever is lower. These government grants, allocated in separate envelopes, now constitute by far the main source of revenue for school boards. In their management of public funds, the boards are therefore more accountable to the government, which subsidizes them, than they are to local and regional populations from whom they collect taxes directly (p.11).

Additional details of the revised finance system, particularly as it relates to the allocation of provincial grants to boards, is given in La Nouvelles Méthode d'Allocation des Resources aux Commissions Scolaires pour 1'Anéc 1980-81. (Ministere de 1'Education, 1980). In essence, the government changed from a line-item oriented system with specific appropriations for different functions and categories of staff to a global method dependent on three budgetary envelopes (teaching personnel, other personnel, and other costs) that are based on historical levels of funding adjusted by the use of some rather complex formulas to account for salary settlements in collective agreements (all bargained at the provincial level), and the like. In addition, supplementary allocations are given as the results of special regulations or decisions of the Ministry.

A major purpose of the new finance scheme was to contain the level of costs and cost trends. Quite clearly, they plan can be characterized as one entailing virtually full state funding. The local option to levy 2.5 mills or 6% of the toal approved budget does, however, give some leeway for the expression of local tastes.

The overall economic situation now dominates most discussion of education finance in Quebec. The Challenge of Quebec's Socio-Economic Development in the Eighties (in French) by Pierre Fortin and Pierre Frechette (1982) outlines an argument that concludes Quebec's civil servants are overpaid by 20 percent in comparison to comparable personnel in private business or other provinces. This report apparently has formed the basis for the government's thrust to limit wages, or to recapture 1982 increments by paying lower salaries in 1983. In education, the situation is complicated by staff on lay off who collect full salaries until positions open up.

Articles in Informeq published by the Ministry of Education throughout 1981 and 1982 have described the situation with laid off teachers and the sweeping plan to reorganize schools under common councils. For those outside Quebec, it may be the most convenient source for keeping up-to-date on educational issues there, recognizing of course that it reflects the government's objectives.

New Brunswick.

The New Brunswick system of educational finance and governance is concisely described in Determining Education Budgets (Ministry of Education, Planning and Development, May 1981). It is notable that, though the finance system allows local boards to requisition supplementary levies, this is virtually never done, in contrast to other provinces wherein the growth in supplementary levels is a major concern. It is clear from policy statements that the Province is practicing restraint. For example, under Transportation, it is noted, "Because of Provincial restraints only very exceptional cases created by increased number of pupils will qualify for additional buses or new bus routes in 1980-81."

The centralized financing system requires quite specific estimates of prices for various goods and services; that these are available is also evident in the policy statements. As well, teachers salaries are bargained for at the provincial level, so the price of the teachers is uniform, though of course their cost (including increments and qualifications) may vary.

Prince Edward Island.

A major problem in Prince Edward Island, as in other jurisdictions, has been that of making appropriate adjustments in finance formulae to take into account increasing numbers of small schools. In the PEI Assistance for Small Schools 1982-83 Program, described in a document of that title, it is noted, "The formula used to determine the level of funding provides for a basic grant plus a per student grant. A reduction factor based on average grade enrolment is used to reduce the level of funding to zero when a school is no longer considered small. The formula is used to determine the total amount of funds available to school boards. Proposals for the utilization of funds to employ additional staff must be submitted to the Minister of Education for approval.

The formulae themselves are relatively complex. Funding is made according to two categories of schools, those with 0 to 9.99 pupils per grade, and those with 10-20 pupils per grade. Thus, a grade 1-6 school with 21 pupils per grade (126 pupils) would no longer be considered small. "The purpose of the two categories is to provide a level of assistance up to a certain level and then as natural economics of scale impact the level of assistance will decrease to nil (p. 1)."

Nova Scotia.

With the presentation of the Report of the Commission on Public Education Finance (Halifax: Nova Scotia Ministry of Education, March 31, 1981), usually referred to as the Walker Commission, Nova Scotia education entered into a period of radical change, unlike anything it has experienced since the early 1940s. The Minister accepted the majority of the recommendations that had been put forward by the Commission, which had included Daniel Brownlow from the City of Dartmouth, John Levangie, Chief Director-Finance and Budgeting, and George Walker, Superintendent of Kings County Amalgamated School Board (Chairman).

The recommendations, when fully implemented, will reduce the number of school board from 85 to approximately 21. Existing boards may not choose to join one of the new larger boards, but would lose 10% of the provincial grant. Apparently, only one small board has opted out.

As well, a minimum (Core) Program was recommended. This core would be funded using a system of weighted students (1.00 primary to grade 6; 1.20 grades 7 to 12; and 2.3 for vocational students). Initially, the basic formula would guarantee $1,350 per unit, though to compute this figure a sum of estimated per pupil costs for 15 items would be summed. The province would pay $950 of the $1,350, with the remaining $400 being shared costs. To afford the $950, funds currently used for property tax relief forwarded to municipalities would be used directly by the Ministry of Education to fund education. The local share on uniform assessment would be calculated at a rate of 35 mills. Funds over the $1,350 per student unit would be raised locally, although stringent voting rules (80% in favour) were suggested. Finally, all general formula funding would be on a global basis.

These sweeping reforms were necessary since the previous foundation plan had not been kept up to date. Many items requiring annual adjustments in funding rates had not been adjusted since 1975. The Educational Assistance Committee, set up in 1970, had held the system together by making special grants to boards in dire straights. This Committee would be disbanded.

Among the recommendations not accepted by the government were (1) merging vocational schools with local boards (2) the structure of new school boards and (3) grants to private schools in existence for more than ten years. In particular, it has been decided that school boards will be one-third elected, one-third appointed by the municipal council, and one-third appointed by government.

Bulletins issued by the committee describe the steps taken to implement the report. Problems in the formation of new boards led to an extension of the deadline for their formation until January 31, 1982. But given the complexity and political difficulty of the problem, it appears to have gone well. The computer simulation sheets included suggest a technically proficient staff. This is necessary since, complicating the problem, had been limits that were placed on the amount of new or increased assessment that could be taxed. "Now, ten years after Section 62 (6) became law, there is estimated to be three and one quarter billion dollars in 'protected' assessment in the Province; i.e., assessment not used for purposes of calculating local ability to pay (p. 3)." In bringing this assessment on stream, accurate estimates of the impact on mill rates and total taxes were needed.

Finally, on September 24, 1982, the province joined B.C. and Ontario in limiting public sector raises for the coming year. The ceiling will be 6 percent applied to a bargaining unit, and strikes on the issue are disallowed (Globe and Mail, September 25, 1982).

Newfoundland and Labrador.

Newfoundland's system of education, with its denominational organization (Integrated, Roman Catholic, Pentecostal Assemblies and Seventh Day Adventist) is unique in Canada. Schools are funded virtually 100 percent by the province and capital grants are made to Denominational Education Committees. However, as is clear in School Board Financing for the 80's (St. John's Federation of School Boards of Newfoundland, November 1981), local taxes are paying an increasing share of the cost of education. Though the total may amount to less than 10 percent, and probably only 5 percent, the relatively poor state of the system of property tax assessments has meant heavy reliance on poll taxes. Rental value taxes are also collected, but only in St. John's.

In addition to the poor property assessment system, there are tremendous differences in local assessments per pupil. Some school tax authorities can raise large amounts with low rates, while others have virtually no real assessment. Developing a workable scheme that is more equitable fiscally is a difficult problem, particularly starting from a position in which reliable data are not readily available.

General.

There is only one recent book which provides an overview of education finance in Canada; it is Education Finance in Canada (Ottawa: by Wilfred G. Brown (1981). It is an excellent overview that, in fact, provides the context necessary to appreciate the place of education finance in public finance in Canada. Its major limitation is its data, which cover the period from 1960 to 1977. Recent trends are, in several cases, quite distinct from those reported, so that the reader may be misled.

Ross Harrold addresses a national topic in "The Development of Elementary and Secondary Education Price Indexes in Canada and Australia" (1981). Harrold describes the different role these indices have played in the two nations. In Australia, they were confidential data on which grants were allocated to states from the Commonwealth government, while in Canada they were public statistics of interest to academics and policy analysts.

In discussing the problems of creating indices, something addressed in one of the Alberta studies described earlier, Harrold notes that the issue of including experience and training increments in the index is difficult to resolve since the literature relating these variables to student achievement is ambiguous. "If, to us, neither attribute improves learning significantly, then salary increases deriving from both are purely price effects and should be reflected in the price index. If we believe that only one of the attributes affects learning outcomes, then salary increases deriving from that attribute ought not to appear in the index (p. 39)."

Perhaps of most interest are the trends in prices Harrold reports. His data suggest that in comparison to the Australian system of price adjustments, the Canadian system is less responsive to changes in the rate of inflation. He suggests that full state funding and labour contracts

with quarterly adjustments related to the Consumer Price Index account for the responsiveness of the Australian system, while Canada's system of decentralized controls accounts for its lack of responsiveness. Note that, in the end, the results are the same, though the lag in the Canadian system may account for the obstinateness of teachers on taking lower wage settlements when the economy is slow: they were slow to get increments when rapid inflation started.

Mark and Carruther's "Property Tax Deferment as a Method of Reducing Cash Flow Problems" (May 1982) also deals with a general issue, though they apply their ideas to the real estate tax problem in British Columbia. They suggest that the rapid feedback of increases in assessed value creates cash flow problems for many individuals when taxes are based on market value assessments. In the short run, incomes would not keep up with property value increases. Deferring property taxes, a solution allowed in law for the elderly and disabled in B.C., is one solution. However, Mark and Carruther's analysis suggests that the cost of expanding the program and the reluctance of people to encumber real property with liens make this solution unattractive to both provinces and the individual.

A final general issue addressed in recent work by Mark and Carruthers (August 1982) and in Financing K-12 Schooling in Alberta is that of assessing equity. The standard reference for this topic in Canada is Bezeau's "Measures of Inequality of Per Pupil Expenditure: Application to Ontario," (1979). Since Bezeau's work, others have computed similar statistics, such as the coefficient of variation, for most other provinces. The conclusion is that, in comparison to the U.S., the systems of educational finance in Canadian provinces are quite equitable.

The Techniques of Financing Education

In considering the actual methods used in the various provinces to project and allocate funds in support of school systems, as outlined in the preceding section, one is faced with a wide range of technical, and perhaps political, sophistication. In particular, methods of assessing

properties, record keeping, measuring prices and simulating the effects of different decisions vary tremendously from study to study and province to province.

At one end of the scale is British Columbia which, apparently, as computerized data bases on property assessments which can be, and are, updated annually on the basis of sales information on a sample of properties in a given area. How sophisticated their estimation methods are is difficult to say, but at least on a municipal level and for the purposes of calculating revenue that would be raised by establishing a given mill rate, they appear fully satisfactory.

Within Ontario,the system of assessing property and record keeping is not so sophisticated. Even in the parts of Ontario where market value assessment has been implemented, updates are made only every five years or so. Further, in areas without market assessment, current assessed values of properties of similar types often differ by a factor of 2 or 3, and updates based on reassessments are at least 10 years out of date. Only recently have authorities in Metro Toronto begun to update assessments on homes that have been extensively renovated, though such reassessments have long been required by law. Owners of these homes have, in effect, had a tax holiday of, in some cases, more than a decade.

Newfoundland is only now establishing a data base of property assessments that could be used for implementing a property tax system in most areas of the province.

An efficient system, as B.C.'s experience has shown, is not a solution to all problems. Indeed, the rapid feedback of inflated prices into the assessment base has perhaps accentuated the impact of short term speculative booms that would have been missed, or brought on line more gradually, in a traditional system. Of course, as the taxpayer revolt in California showed, traditional systems, in which properties are reassessed on a cycle of perhaps five or more years, also create problems for tax administrators.

Existence of up-to-date assessment data, aggregated at the municipal level, have greatly facilitated the use of simulation models to judge the incidence of new or different taxes. Simulations such as those used in B.C. and Nova Scotia provide policy makers and analysts far more insight into the effects of proposals before they are implemented, and thereby provide far more control than in the past. Within the Ministry of Education

in B.C., board by board simulations are carried out on APPLE II Plus microcomputers using VISICALC, a standard software package that facilitates the manipulation of the rows and columns of a "balance sheet". Staff there report that six months ago, without the APPLEs, it took five people a week at electronic calculators to carry out a simulation that can now be completed by one person in one day--with greater accuracy.

As well, statistical sampling techniques combined with the expertise of economists have allowed the development of provincial cost of education indices that are valid, reliable indicators of the price of educational products and services. The index developed for Alberta appears the most sophisticated, but it appears that New Brunswick and some other provinces in which the Ministry plays a central role in the budgeting process of boards have the problem well in hand. Current work will extend these indices to regions of provinces and, if they prove cost-effective, they will no doubt become part of the repertoire of grants administrators.

Formulae to allocate funds to boards also range in complexity from the relatively simple to the very complex. If the system being developed in Alberta to simulate its current allocation of funds is successfully implemented, analysts will be able to simultaneously manipulate 40 different grant schemes, and select the formula that best achieves provincial objectives. Without the system in operation, it appears that the control over the net effects of the grant schemes is weak, as suggested by the work of Ratsoy, et al.

While not so elegant as the system proposed in Alberta, the Ontario scheme that involves the extensive use of "weighted pupils" to adjust grant ceilings to take into account the special character and needs of school boards probably is the most sophisticated in use. Schemes that allocate fixed numbers of teachers or fixed dollars per pupil, as in Newfoundland, Nova Scotia, and many of the other provinces appear justifiable only so long as the local boards have the freedom--in theory and fact--to supplement provincial funds from local resources. Yet, it appears that increasingly, that flexibility is disappearing. On the other hand, an approach that bases this year's budget on that of the preceding year, as in B.C. and Quebec, tends to lock in variation in

expenditures per pupil, be they defensible or indefensible. Admittedly, empirical data suggest that such variations that do exist are relatively small.

The various allocation formulae that are used invariably reflect not only technical sophistication but also, to a degree, a political stance on the issue of decentralization and the power, or autonomy, of local boards of education. Clearly, the central systems of finance, as in New Brunswick and Prince Edward Island, tend to be associated with a circumscribed role for school boards and the trustees who sit on them. Province-wide bargaining, as in all of the Atlantic provinces, Quebec and Saskatchewan also reduces the say of local trustees (even if, as in Saskatchewan, representatives of the trustees associations are involved in the bargaining process). In contrast, the weighted student approach in Ontario and the system formerly used in B.C. where budgets are tied to previous spending, tend to allow a greater political and economic role for school trustees.

Yet, in all but a few provinces (and the "few" would probably include New Brunswick, Prince Edward Island and now Nova Scotia), there does not appear to be built in, within the system, adequate control of overall expenditures. This is most obvious in Quebec, which is planning to roll back salaries next January 1, and B.C., where provincial restrainsts have been placed on school board budgets. In the latter situation, falling provincial revenues combined with excessive spending by boards created a crisis. A few statistics suggest the "stimulus" provided to the government by the school boards: Between 1981 and 1982, enrolment in B.C. schools declined by 1.33%, the number of teachers increased by 2.5%, and operating budgets increased by 18.73%--after having been cut 1.734% by the province. But, the situation may be little better in a number of other provinces. As noted previously, in Alberta local "supplement" levies have increased less than 5% in 1975 to almost 25%. It is also known that all boards in Ontario have, in fact, made supplementary levies and are spending over grant ceilings. And, both Nova Scotia and Ontario have followed British Columbia in restricting public employee's salaries.

Thus, we find contradictory evidence on the "technology" of financing education. On the one hand, "technological creep"--the slow improvement in techniques--is having what will be viewed as a

revolutionary impact on the techniques used to finance education. Extensive data banks and sophisticated software will allow the accurate simulation of complex funding formulae or of the impact of an array of separate stimulation and compensatory grants. We will know who is paying how much for education, and to whom the funds are going as we never have in the past. In this revolution, specialists in ministries of education (finance branch), in ministries of finance, and in private consulting firms such as Peat Marwick appear to be the primary players. Educational finance experts in universities and especially in faculties of education and departments of educational administration seem to be on the periphery.

Yet, in spite of this grwoing level of expertise (and in part perhaps the cause of the growing expertise) is a recognition that the overall mechanisms for controlling the cost of education are inadequate in those provinces which have committed themselves to strong local school boards, school boards which can determine program, numbers of teachers and salaries of teachers. Perhaps provinces, in their desire to equalize expenditure and relieve the burden of local ratepayers, have given school boards economic power without economic responsibility. Whether this is, in fact, a proper interpretation is not the point, however. What is apparent is the failure of governments--and hence no doubt of educators--to design a system of financing education that provides the desired degree of equality and autonomy, without sacrificing, to too great a degree, efficiency. One cannot expect an absence of problems, but one would like to avoid the too frequent intervention of senior levels of government to put things back into shape.

Research on the Economics and Finance of Education

The suggestion above that the technical sophistication of specialists in government and private consulting firms is surpassing that of the university professor does not mean that the latter must fall by the wayside. Indeed, their role may become more important than ever, since they must strive to link educational philosophy and practice to financial planning.

This new role for finance specialists in universities is most evident, at present, in reports such as those by Caldwell, Ratsoy et al., Jackson,

Walker, and the Quebec ministry. All of these studies emphasize the need to define the type of education that is being purchased with the funds appropriated by local and provincial ratepayers. Clearly, the foundation of the foundation plans that are used, in effect, in all provinces rest on a credible explication of the "product" that is being offered by schools and purchased by parents and rate payers. This is not a new idea: Martha Leatherbury had such stipulations in her contract, which called for reading, writing and spelling (I can only assume she was a bit weak in maths).

As well, studies such as Caldwell's and Sloan's on the policy process are necessary to emphasize the political links to changes in systems of financing education. In particular, the effectiveness of special interest groups (such as independent school supporters in B.C. and special education lobbyists in Ontario) need further study. In some, case studies may have been done, but not widely distributed (e.g., L. W. Downey's "The Anatomy of a Policy Decision: B.C.'s Bill 33—The Independent Schools Act"). It appears that special interests rather than the common interests of society may have first place at the public's financial watering trough.

Linked to the latter is research on the diffusion of innovations in education. Waves of change are sweeping through the system--support for independent schools, French immersion programs, etc. Each change places demands on the system of school finance. An overly structured system of finance, with too many controls, may make the school system as a whole too conservative. On the other hand, an overly responsive or unplanned system may be open to manipulation, distortion, and exploitation. Proper priorities may be submerged by the responses to effective lobbies and the persuasiveness of the proponents of the latest fad.

Among the administrative innovations that are open to further study are school based budgeting. Combined with the administrative use of micro-computers, it would appear the delegation of greater budgeting authority to the school could ensure the greater efficiency of schools by facilitating the expenditure of funds on those items that will, in the opinion of those closest to the scene, will provide the greatest benefit. Implied in this, however, is a shift in the roles of both teachers and administrators, and changes which require such shifts in behavior are invariably the most difficult to adapt and implement, as is recognized in Quebec's proposal to reform the structure of education in that province.

Finally, we return to the issue of decentralization--be it from province to board, or board to school, or principal to teacher. This issue is a recurrent one in education, and the literature on the topic often talks of cycles from extreme centralization to extreme decentralization. It is ironic that current economic problems seems to be bringing about a move toward greater centralization, in order to control costs. Economic theory suggests that a decentralized system that emulates the marketplace in tailoring the product to the tastes of the local market would be most efficient.

Esthetically, at least, it seems unsatisfactory to dismiss the issue of centralization as a cyclic phenomena tied, perhaps, to economic conditions. It would seem that more stable arrangements might be possible, arrangements that would ensure the degree of autonomy needed at a given level to do that function well, without jeopardizing the economic welfare of the whole organization or system. To be sure, there is no guaranty that any system of "fiscal federalism," no matter how well tested by the academic, will prove politically feasible. Yet, the current environment, in which educators and governments alike seem concerned about both the form and cost of education may be a suitable one for trying new solutions. In B.C., in Alberta, and in Manitoba, the designs of new systems of educational finance are not yet complete. They may yet be able to avoid the trap of centralization into which Nova Scotia seems to be falling and yet gain the financial control that is necessary for responsible government. In a small and stable province such as Nova Scotia, a centralized system may in fact not be altogether inappropriate. Yet, in these Western provinces, such a system would appear, from history, to place the provincial governments in a position which, in a few years, would create demands for decentralization in order to overcome the problems that centralization invariably creates when rapid social and economic change is taking place. Quebec's move in this direction provides one such example. Thus, professors of educational finance have an opportunity to undertake research that could, in the end, prove of considerable value to their provinces and their systems of education.

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